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PHILADELPHIA, MARCH 16, 1878.

ORIGINAL LECTURES.

CLINICAL LECTURE
ON SOME RARE FORMS OF DISEASE.

Delivered at the Pennsylvania Hospital

BY J. M. DA COSTA, M.D.

Reported for the *Medical Times.*

RHEUMATOID ARTHRITIS, WITH LOCAL PERITONITIS AS A SYMPTOM.

THIS patient is 34 years of age, married, and has three healthy children. None of her labors have been difficult. Her present trouble began first about three years ago, when she was living in a cold, damp house during the winter months. The disease has consisted of a series of attacks of stiffness of her fingers and swelling of her joints. The smaller joints have been most affected. You see how prominent the articulations of the fingers have become. The metacarpal and phalangeal joints give rise to distinct grating when moved. The hands, when in a position of repose, incline outwards. The joints of the left hand are not as much affected as those of the right.

The woman tells me that the swelling came on gradually, and began in the fingers of the right hand. Though the first rheumatic attack lasted some six months, she had no fever, and was not confined to bed. She says that the swelling and stiffness have been confined chiefly to the hands, but that of late months the knee- and hip joints have been slightly stiff. The woman came here to be treated for the swelling and stiffness, and also for general loss of health. While in the hospital, during the past two weeks, she has had a sudden and acute attack of a somewhat surprising nature, all things being considered. There was a spot of circumscribed hardness, which was very tender to the touch, in the median line of the abdomen, and extending a little to the right. The spot was about the size of a fist. This was evidently an attack of local peritonitis, and, such being the case, I had the spot poulticed, and then well rubbed with camphor and belladonna: under this treatment the pain and tenderness at once disappeared.

Upon examining to-day the patient's heart, I find its action slightly rapid and the sounds sharp, but no murmur. The patient is still rather weak, but her menses are regular, her tongue uncoated, and her urine free from albumen. She has no uterine symptoms. What is the matter? you will ask me; what was the original attack, and what state of things have we to deal with to-day?

At first sight this case looks like one of acute, subacute, or chronic rheumatism, but it is in reality, I am convinced, none of these, but rather an example of what is variously known as rheumatic gout, arthritic fever, or rheumatoid arthritis. I prefer the last name.

Rheumatoid arthritis, as seen in the light of modern clinical experience, is an affection *sui generis*, unlike rheumatism or gout, and having a distinct clinical history. Why do I call this so positively a case of rheumatoid arthritis? Because (1) the difficulty originated gradually,—was, in fact, a whole winter in starting, there being no history of any acute seizure; (2) the disease began in the small joints, and only extended to the larger ones late in the progress of the malady; and (3) on account of the absence of any febrile symptoms. In the gradual approach of the malady, in its preference for the smaller joints, and in the comparative absence of fever we have the three most distinguishing traits of rheumatoid arthritis. We find also corroborative facts in the condition of the heart. The heart is sound. So it is in rheumatoid arthritis, and so it is not in any other form of rheumatism. This condition of rheumatoid arthritis has brought on a state of permanent joint lesion,—an enlargement in the ends of the bones, so that the surfaces of the ends of the small bones are polished and irregular, causing them to grate when rubbed together. There has, in short, been a sort of ivory-like degeneration, which is characteristic of this malady.

What was the extraordinary local lesion which made its appearance week before last? I am convinced that it was simply an extension of the characteristic morbid process, such as already existed in the joints, to the tissues surrounding the ovaries, uterus, and lower part of the abdomen. This, you will say, is very strange. How can rheumatoid arthritis extend to the peritoneal sac and the neighboring

organs? I give this explanation of the fact because I can think of none other. I cannot explain the rapid appearance and disappearance of the local peritonitis except in this way. There was no uterine affection whatsoever. *The local inflammation was a local expression of rheumatoid arthritis.*

What has been my mode of treatment? How first did I treat the peritonitis? As I said above, I first had the abdomen poulticed, and then rubbed with belladonna and camphor. Under this treatment the inflammation had entirely disappeared in three days; and yet I do not know that it is fair to attribute this cure entirely to the local applications. As that inflammation was coincident with a fresh attack of rheumatoid arthritis, I had the patient placed first on salicylic acid, and then on salicylate of sodium. The effects of this latter treatment were very striking. On the three days during which the peritonitis was present, the temperature was 104°, 103°, and 102½°. On the fourth day it fell to 100°.

This has been my first trial of salicylic acid in cases of rheumatoid arthritis; at least it is my first in subacute cases. Whether it will have the same excellent results in chronic cases of this disorder yet remains to be seen. I tried it for a short time last year in a chronic case with but negative results. I think that salicylic acid is more valuable, perhaps, in cases of acute and subacute rheumatoid arthritis than in acute or subacute rheumatism. The more chronic the case of rheumatism the less likely is it to do good.

As I have told you before, I prefer the salicylate of sodium to salicylic acid. It is better borne by the stomach, and may be given with more absolute safety. We mix the salicylate with compound spirit of lavender, glycerin, and water, and give ten grains four times a day. I will order the smaller joints to be regularly painted with iodine, and I will have the larger joints, which are stiff and swollen, blistered.

CEREBRAL EMBOLISM WITH CANCER OF THE HEART.

You no doubt remember my bringing before you five or six months ago a series of cases of brain-disease. One case in particular, you will recollect, I determined to be one of embolism of the middle cerebral artery with disease of the heart. I said at the time, in connection with the case, that the collateral circulation would be established, and that the patient would probably get well. As far as the brain-trouble was concerned, I was right. From being at first afflicted with complete loss of power on one side, and partial loss of power on the other, the patient recovered so far as to be able to walk about the wards. Just as the effects of the embolism, however, were beginning to disappear, the symptoms of heart-disease became prominent. The mitral disease caused congestion of the lungs, and the patient had two severe attacks of hæmoptysis. After the second hemorrhage I found a spot of local dulness in the chest, showing that there had been extravasation of blood. A day or two after this examination the man died suddenly.

I bring before you to-day his heart and brain, that I may examine them with you. Let us first examine the brain. After excluding the question of clot, you will remember, I told you that the embolic plug was undergoing absorption. You see there is not a single trace of clot or inflammation here, nor is there any plug in any of the vessels. The left corpus striatum is a little softer than the right. This is the only sign of its presence left by the embolism. This case shows how a pure cerebral embolism is likely to get well, viz., by absorption of the plug and establishment of a collateral circulation. The slight amount of softening and of tissue-change shows that the circulation was interfered with by a plug.

Why could it not have been a case of congestion of the brain? Congestion of the brain rarely gives rise to such persistent paralysis. Congestion certainly would not have brought on hemiplegia,—for the other side of the man's body was so slightly affected that it was undoubtedly an instance of hemiplegia. So much for the brain.

The heart presents a rare condition. In the first place, the mitral valve is so thickened that it is kept permanently open. This mitral thickening has had an exceedingly unusual cause. There is not so much thickening of the valve as thickening under the valve. This thickening extends into the body of the ventricle. There is, in fact, a tumor in the body of the ventricle. This tumor extends entirely through the septum of the ventricles into the right

cavity. This tumor, by its interference with the functions of the heart, has produced mitral disease.

I cannot be positive about the nature of this growth, but I think it is cancerous. It may or may not have been of syphilitic origin. (The patient had a history of venereal disease.) This must remain an open question. It is very strange, but the patient presented during life no symptoms of this tumor. There was entire absence of pain. The only symptom which I noticed, and which perhaps ought to have suggested some such disorder, was the pale, cachectic look of the man. Cancer of the heart is a disease of extreme rarity. This specimen should therefore have for you a peculiar pathological interest.

HYSTERIA WITH LUNG-SYMPTOMS SIMULATING THOSE OF PHTHISIS.

B. H., 19 years of age; single; a sewing-girl. Her previous history is not altogether clear to us. However, since leaving the hospital last August, she has suffered frequently from cough, pains in the bones, and sore throat. She was admitted a second time to the wards on January 17. Upon admission, her temperature was 101°, pulse 120, and respirations 46 to the minute. She was placed upon diaphoretics and quinia, and under the use of these remedies her sore throat and bronchitis rapidly disappeared. We were greatly surprised to find that upon one occasion about two weeks ago the patient herself scored a temperature of 109°. With this exception, plainly due to freak or mistake, her temperature has not at any time departed much from the normal. The patient has lately had several severe hemorrhages, during the course of one of which she lost as much as a pint of blood.

What have we, then? A history of cough and acute chest-trouble, followed by several copious hemorrhages. The woman has clearly an hysterical diathesis. You can tell it from her look and from that little freak of scoring a temperature of 109°. Her menstruation has been irregular for a long period,—irregular, not arrested; there has been no amenorrhœa.

Let me examine her chest. Anteriorly, on the right, the resonance is slightly impaired; so, too, posteriorly. On the left side, the resonance is good both in front and behind. Auscultation shows some prolongation of the expiratory murmur on the right side both anteriorly and posteriorly, but no râles. On the left side the respiration is distinct. All the phenomena are limited to the upper part of the right lung. These signs have existed from the time we first saw the case. I find upon further questioning that the girl has had a little cough for a long time, and has been of late years losing flesh considerably.

What would you say was the matter with her? Has she consumption? At first sight there seems to be no doubt of it. Why, you will ask, should I have the least doubt of it? I will answer that I not only have a doubt, but that I even do not believe she has consumption. And I will tell you why I say this. I have lately seen four or five hysterical women troubled with hemorrhage from the lungs. In these women, soon after the hemorrhage was over, the local signs of slight consolidation made their appearance. I thought at first that I had come across a new clinical fact,—when, upon chancing to turn over the leaves of a recent French journal, I found twelve cases recorded in which the hysteria had been accompanied by symptoms resembling those of phthisis, viz., hemorrhage and consolidation.

How am I to determine whether or not there is consumption in this case? Thus far the physical signs do not help me, because they are only on one side. If they existed on both sides, I should unhesitatingly call the case one of phthisis. As it now stands, several facts go against this explanation. In the first place, the even temperature recorded is strongly in favor of hysterical lung-symptoms and not those of phthisis. Then, again, there has been very little cough, and scarcely any expectoration. The looks and actions of the patient are those of an hysterical subject.

But this question is not yet thoroughly understood: must it remain unsolved? Not long, I hope. We will make accurate physical examinations,—note how far the signs of consolidation extend. (They now extend to the second rib; there are no râles when the girl is free from hemorrhage.) If the physical signs are steady, or if they gradually pass away, I will call it hysteria. If the physical signs increase, and the râles and harsh murmurs extend downwards, I will know I have to deal with consumption. If the temperature-record is steady, it will be favorable to the hysterical view. If the record becomes fever-

ish, with evening exacerbations, I shall know that tubercles exist. If the girl's courses were entirely absent, I might say that the hemorrhages were vicarious; but, as the menstruation is only irregular, I cannot lay much stress upon that view.

How shall we treat the case? She is taking muriatic acid and the tincture of the chloride of iron. I will have blisters applied over the right apex. The girl has already been repeatedly dry-cupped in that region. Joined with this treatment we will see that she gets good, nourishing food, and that her uterine functions are regularly and fully performed. Though we intend to keep a watchful eye upon this case and note carefully all changes before reaching a positive conclusion, I may say to you even now that I am quite confident that there are no tubercles developed or developing in the lung, but that the case is one of an hysterical nature.

ORIGINAL COMMUNICATIONS.

RATIONAL TREATMENT OF LEAD-POISONING.

BY GEORGE HAY, M.D.

A CASE of poisoning of land, of the plants growing thereon, and of the cattle feeding on the plants; a case in which I have been recently consulted as a chemical expert, occurring a few miles from this city; an extensive case of poisoning occasioned by the vapors escaping from the chimneys of the Pennsylvania Lead Company's Smelting Works, together with my own observations of several cases of saturnine poisoning in human beings, have led me to reflect upon that form of poisoning, and the treatment usually pursued in such cases. My reflections have driven me to the conclusion that the routine treatment of lead-poisoning is in some respects irrational and contra-indicated both by common sense and by science. Permit me, therefore, to suggest what appears to me a method of treatment at once more sensible and scientific. I am quite aware that chemistry is held in considerable disrepute and treated with some measure of scorn by many members of the medical profession; but I am also aware that scorn is only in many instances the outward expression of imperfect knowledge, and that as the knowledge increases the scorn diminishes. The real knowledge of chemistry possessed by many medical men is just sufficient to prevent them from prescribing incompatibles in the medicines exhibited, and while this amount of knowledge is doubtless not to be regarded with contempt, it is certain that it does not by any means constitute the entire range of the applicability of chemistry to the rational and intelligent practice of medicine. Properly understood, there is a vast deal of chemistry in both physiology and anatomy, and these three are the sciences upon which the art of medicine is founded. Any one of these three being removed, the structure is incomplete. In the application of science called the art of medicine, there is, as in general science itself, an interdependence and consensus which ought never to be lost sight of by any one who would attempt to practise medicine intelligently. Chemistry sends its ramifications throughout all nature, and therefore, notwithstanding the disfavor of many members of the profession, I am ready at all times to maintain that no deep insight into the workings of nature in the animal body will ever be obtained until the chemistry of life is better understood and more highly appreciated than it is at present. Scorn of any knowledge is opposed to the spirit of philosophy. Let us, therefore, lay scorn aside, and look at this matter of lead-poisoning from a philosophical standpoint.

Acute saturnine poisoning is usually occasioned by the ingestion of an overdose of some more or less soluble compound of lead, and presents certain phenomena. The first effect seems to be irritant, as there is generally gastric and abdominal pain; in fact, in many instances there is violent colic. The other symptoms of acute lead-poisoning I shall not at present dilate upon, my purpose being merely to distinguish between the acute and the chronic forms of this disease. Since acute lead-poisoning is due to the presence in the alimentary canal of a more or less soluble irritant poison, the causal indications for treatment plainly point to two methods,—the first being the entire removal of the poison from the stomach and intestines, and the second being the neutralization or rendering inert of the poison, if the first is found to be impracticable. Both of these things may be attempted simultaneously. To remove the

lead salt, therefore, we attempt purgation, and to render it inert we administer something which, by chemical reaction, shall form an insoluble salt of lead. Both of these indications are very well met by the administration of the sulphate of magnesium, which is both a cathartic and an antidote to the poison, first rendering the lead salt insoluble, and next carrying it off by the bowels. Should the bowels fail to act, an enema may be administered, and to remove the poison from the stomach an emetic of sulphate of zinc, provided free emesis has not already occurred owing to gastric irritation. The administration of white of egg and of milk, by forming for the time insoluble albuminate and caseate, is also a valuable adjunct. The order in which these measures should be resorted to will depend upon circumstances. All this is perfectly rational in cases of acute poisoning by lead; but in my opinion in cases of chronic lead-poisoning such treatment is not only next to useless but is positively pernicious. In acute lead-poisoning the aim of the physician is first to render the lead insoluble, in order to prevent its absorption, and then to remove the so-called insoluble substance from the system, lest in time it should become gradually soluble and be absorbed. It ought to be remembered that even the sulphate of lead is not absolutely insoluble, but only relatively so, and that if allowed to remain it will in time produce the symptoms and effects of chronic saturnine poisoning. Sulphate of lead is to some extent soluble in the gastric juice, and also in the *succus entericus*, and moreover it has been proved by Flandin to produce the effects of chronic poisoning even when used externally as an ointment. From all this it follows that in the treatment of acute lead-poisoning regard should always be had to the probability of chronic effects following upon the acute manifestations.

Let us consider now the chronic form of lead-poisoning. This form of lead-poisoning is due to the absorption of lead into the tissues and organs, and differs from acute poisoning mainly in the fact that while in the acute form of the disease the great bulk of the poison is really outside of the body and producing in the various parts of the alimentary canal its own peculiar species of irritation, modified to some extent by the action of the smaller portion, which is absorbed; in the chronic form nearly all the poison is inside of the body and producing its own peculiar physiological effects in the deterioration of the tissues and organs. This difference in the locality of the poison ought at once to indicate rationally a different mode of treatment, and, to some extent, it is generally believed that this is attempted in the usual treatment of chronic lead-poisoning. Precisely at this point it is where the usual treatment is, in my opinion, founded upon a mistake. I now quote from "Taylor on Poisons:" "When the poison is once absorbed, nothing can be done beyond trusting to its elimination by the urine and other secretions. The use of iodide of potassium has been strongly recommended on the ground of its dissolving the lead and carrying it off by the kidneys, but," Taylor very pertinently adds, "there is no satisfactory evidence that it has in any case accelerated a cure."

Now, in chronic lead-poisoning it is just by the kidneys and skin and alvine dejections that the lead is eliminated; principally, however, by the kidneys. And in what form? In the form of *chloride of lead*, or of oxide dissolved by chlorides or other alkaline salts. That is to say, nature eliminates the lead by making it *soluble* in water, in the form of chloride of lead, and then removing it by the urine. It seems to me proper that we should follow the path indicated by nature in such a case. Yet, guided by prejudice instead of by reason, we follow an entirely different direction. We administer (and this is the most popular treatment) iodide of potassium with the view of rendering the lead soluble. A simple experiment will show that such treatment is absurd. Make a saturated aqueous solution of chloride of lead, and now add a little of a solution of iodide of potassium: the result is a precipitate of iodide of lead, a substance much less soluble than the chloride. But it is in the form of chloride that the lead is eliminated, and therefore when we give the patient iodide of potassium we simply render the lead less soluble than nature would make it, and instead of hastening its elimination we endeavor to retain the poison in the body. It is found that natural waters containing chlorides in abundance render lead in the form of pipes or cisterns soluble, and hence become dangerous as potable waters when stored in or passing through such

vessels. All this can only point to a single conclusion, and that is, that instead of exhibiting iodides we ought to administer chlorides. But, besides its tendency to retard the elimination of the lead, iodide of potassium is contra-indicated on another ground. It is well known that in chronic lead-poisoning there are extreme emaciation and tremulousness. Now, iodine, when its use is long continued, will produce progressive emaciation and nervous symptoms in addition. Iodine is not a reconstructive element at all, and is directly contra-indicated where emaciation exists, excepting where that emaciation is due to syphilis, upon which it appears to exert a specific action. In cases of lead-poisoning complicated by syphilis, of course it would be very proper to administer iodides.

M. Melsens states that in treating lead-poisoning by iodide of potassium the metal was found in the urine, and arrives at the conclusion that its presence in that secretion was due to the action of the iodide. Such reasoning is not logical. The metal would have been found in the urine in any case; for, as above stated, nature eliminates it in that way, and it would have been found more abundantly in the urine had no iodide been exhibited, and, I believe, more abundantly still had chlorides instead of iodides been employed. I am quite aware of the effect of iodine upon secretion, but then solution must always precede secretion. Nature, eliminating the lead as chloride, insists upon the administration of chlorides. All that the best physician can do in any case of disease is to assist nature; but by the administration of iodides in lead-poisoning he is not assisting, but thwarting nature. Of all the chlorides, that which seems to be most suitable to the economy is the common chloride of sodium. It might be administered in cases of chronic lead-poisoning in doses of one drachm three times a day, more or less, but never in quantity to occasion nausea. It is rapidly eliminated by the kidneys, and would, I think, speedily eliminate the lead along with it. It is much cheaper than iodide of potassium, and is not liable to its therapeutic objections. It might be continued for a long time without running down the strength of the patient; indeed, it generally has an opposite effect. If a saline hydragogue cathartic is required, it should be chloride of magnesium or citrate of magnesium, not sulphate of magnesium. No sulphates of any kind whatever ought to be used in chronic lead-poisoning, except the sulphates unavoidably present in the food.

The other great emunctory whereby lead is eliminated from the body is the skin. A tepid bath ought, therefore, to be employed daily, for three reasons, viz., to keep the skin active, to remove whatever lead has been excreted in that way during twenty-four hours, and to prevent its reabsorption. The use of a soft flesh-brush would be a great assistance to the bath by removing mechanically from the skin any lead, in whatever form, adhering to its surface. Sponging of the body might be substituted if the patient is too weak to bear the fatigue of bathing. During the course of recovery from chronic lead-poisoning, to improve the nutrition and build up the strength of the patient, analeptics, nervine tonics, and nutrients are indicated, such as tinctura ferri chloridi, liquor strychniæ (not the sulphate), or tinctura nucis vomicæ, tinctura cinchonæ, or the alkaloid quinia (not its sulphate), together with animal broths, milk, eggs, etc. In addition to this, the patient ought to be carefully guarded against the causes, whether evident or occult, of the poisoning. His occupation, if of such a nature as to expose him to the risk of contamination by lead in any form, ought at once to be abandoned. The water and food supplied to him should be known to be free from lead; and, in short, every reasonable precaution ought to be taken to avoid adding to the amount of lead already present in the system. He should drink filtered rain-water or distilled water, but not any natural water containing sulphates in abundance, as is the case with the water of the Schuylkill, for this would detain the lead even more than iodides.

It is the custom of medical men, when advancing any new doctrine in medicine, to support their reasonings by an account of cases which have come under their own observation; and a very laudable custom it is. But I regret that the very nature of the case prevents me from following this praiseworthy custom. I cannot manufacture cases of chronic lead-poisoning in the human subject for the convenience of study, and I believe also that the number of cases of chronic lead-poisoning, as com-

pared with some other diseases, is small. No one man has opportunities of observing and treating lead-poisoning in a sufficient number of cases for experimental purposes, unless, perhaps, he be fortunate enough to hold a position in some large hospital. I therefore wish to recommend this treatment by chlorides on rational rather than on experimental grounds to the notice of the profession at large, in the hope that in the course of time sufficient experimental data may be forthcoming to justify its soundness in principle and establish it upon a broad basis of fact. Having thus presented my reasons, I leave the experimental part to the profession, who will, I doubt not, give it a fair and impartial trial.

ALLEGHENY CITY.

CASE OF OPIUM-POISONING—USE OF A LARGE AMOUNT OF SULPHATE OF ATROPIA HYPODERMICALLY—RECOVERY.

BY JULIO J. LAMADRID, M.D.,

Brooklyn, N. Y.

AT 7.30 P.M., December 1, 1877, I was called to see Mrs. M. M., 54 years of age, who at about 2½ P.M. of the same day had taken one ounce of laudanum. According to her account after recovery, soon after taking the poison she went to sleep, and slept till she was awakened (5½ P.M.) by the ringing of her door-bell. When she got up, she felt confused and queer, but she managed to go to the door and let one of her daughters in. During her walk from her bed to the door she felt her limbs very heavy and weak, and at the same time was very sleepy. Her daughter noticed at once how strangely she acted, but never suspected or discovered that her mother had taken poison till about 7 o'clock P.M. At the time of my arrival (7.30 P.M.) she was entirely conscious. The pupils were very much contracted, almost to a pin's point. Pulse 96, strong and full. Skin hot, and sweating profusely. She was calm, but very anxious not to have her case reported in the daily papers. I ordered at once an emetic of xx grains each of sulphate of zinc and pulvis ipecacuanhæ, to be repeated in twenty minutes, and gave her a hypodermic injection of x (10) minims of sulphate of atropia from a solution of gr. i ad ℥i.

8.30 P.M.—Patient was more drowsy, but able to walk supported by one person. A second dose of the emetic acted pretty freely. No perceptible change in the pupils. Injected xv minims, or $\frac{1}{36}$ grain, under the skin. She also took per mouth a large quantity of strong infusion of coffee. Shortly after the last injection the pupils dilated somewhat.

9 P.M.—After a consultation with Dr. Jos. H. Hunt, we decided to increase the atropia to xx minims, and accordingly another hypodermic injection of xx minims was given at once. Soon after this we took her out of doors and walked her around, in order to keep her awake as much as possible. We also gave her some more of the coffee.

9.30 P.M.—The pupils were now fully dilated. Pulse somewhat more frequent and weaker, for which we gave her a teaspoonful of spiritus ammoniæ aromatici, together with a teaspoonful of brandy; also xx minims of atropia hypodermically.

10 P.M.—Patient semi-conscious, but was kept partially awake by walking, flagellations, etc. We were unable to make her swallow any more of the coffee or the aromatic spirits of ammonia and brandy. Increased atropia to xxv minims, or $\frac{1}{19}$ grain; injected it immediately under the skin of the left arm. The face and finger-nails were now of a dusky hue. Pulse 108, somewhat weak, and respiration between 12 and 14 per minute.

10.30 P.M.—She was now completely comatose. We gave another hypodermic injection of xxv minims of atropia.

10.50 P.M.—Strongest faradic currents applied to phrenic nerve failed to awaken any response whatever. Previous to the application of electricity another injection under the skin of xxv minims of atropia was given.

11.10 P.M.—Patient for the first time was laid in bed. Pulse 110, but weak. Respiration between 8 and 9 per minute, stertorous, and at times irregular. Injected hypodermically $\frac{1}{19}$ grain of atropia.

11.30 P.M.—At this time xxv minims of atropia were injected again. Pupils widely dilated and irresponsive. We now washed out the stomach with stomach-pump. Over a pint of strong coffee, together with two tablespoonfuls of brandy, was administered.

11 50 P.M.—Hardly any change. Pulse 100, and a little stronger. She could not be aroused. Gave hypodermically $\frac{1}{19}$ grain of atropia.

12.10 A.M.—Respiration 6 per minute, hands cold, and pulse small and weak. Injected xx minims of spiritus ammoniæ aromatici hypodermically. Also increased atropia to $\frac{1}{14}$ grain, which was given immediately as before. Soon after this the respiration increased to 9 per minute, and the pulse became stronger, 108 per minute.

12.40 A.M.—No change.

1 A.M.—The pulse and respiration had both diminished again. Injected hypodermically, as before, xxx minims of atropia; also an equal dose of spt. amm. aromat. In a little while the pulse became stronger, 108, and the respiration 11 per minute. Cornea and conjunctiva were still insensible.

1.40 A.M.—There was noticed again a fall-

ing off of the pulse and respiration. Pupils widely dilated; in fact, they had scarcely altered any, but had remained in that state throughout the whole night. As there were no signs of consciousness, and all the above symptoms had as before diminished somewhat, we repeated atropia hypodermically as above, with similar effect.

2.50 A.M.—At this time, after shouting and slapping the patient, and having tried other means to arouse her, we soon desisted, having failed to notice the least signs of sensibility. The pulse and respiration had decreased again, for which we repeated another $\frac{1}{15}$ grain of atropia, also xxx minims of spt. amm. aromat. In a little while the effect seemed, for the first time, to be more permanent.

3.30 A.M.—As the respiration (13) and the pulse (100 and weak) had remained stationary since our last observation, but no signs of sensibility were as yet visible, it was thought best to try another xxx minims of atropia hypodermically, which we did. In a little while another attempt was made to arouse the patient from her stupor. To our surprise, but great delight and satisfaction, she opened her eyes for the first time, but closed them almost immediately. From this time forth, however, she could be easily aroused. The respiration increased, and the pulse became moderately strong.

5 A.M.—She attempted to answer when spoken to. Later on (5½ o'clock), when we left her, she was dozing quietly. The respiration was then full and natural. Skin warm, but very dry, and pulse 100. Saw her the next morning at 10½ o'clock. On examination found her somewhat restless and delirious. Headache, skin hot, and face covered thickly with the characteristic belladonna eruption. Pulse 110, strong and full. Temperature under the axilla 101½° F. She had a wild, staring look. Tongue looked thick and dry. For a time she was unable to recognize any of her friends. She scratched herself incessantly, and complained of a terrible itching all over her body, especially around the nose and face. Ordered cold applications to the head, a mustard plaster to the back of the neck, and for medicine the following mixture:

℞ Chloralis, ℥ii;
Potassii bromidi, ℥iv;
Syrupi flores aurantii,
Aquæ, āā f℥j.
Ft. mistura.

Sig.—Take a teaspoonful every hour till three doses are taken or sleep is produced; after that, every two hours if necessary.

Saw her again at 8 P.M. On inquiry, learned that she had slept for three hours after taking three doses of the mixture. When she awoke she was perfectly rational, and seemed to remember or understand her present condition. The eruption on the face looked about the same as it did in the morning, and the pupils were still dilated. She did not complain particularly of any dryness of the throat or mouth. The sensation of itching was very intense; in fact, she said she felt like tearing herself to pieces. Pulse 96, and temperature a little above normal.

The next morning she was up and apparently quite well, but she still complained of the itching and of disordered sight. The pupils were still somewhat dilated. The belladonna rash also seemed to be fading away gradually. She had passed urine abundantly several times during the previous day and night. After this Mrs. M. suffered from no further symptoms.

Remarks.—On looking over the literature of this subject back from the year 1870, I have been unable to see or read of a case in which such a large amount of sulphate of atropia was given to a single person and under similar circumstances. The nearest approach to it I know of was in a case lately reported by Dr. J. B. Leary in the Proceedings of the King's County Medical Society, vol. ii. No. 3. The case is that of a man who at 4 P.M. one day took thirty grains of the pure extract of belladonna. Three hours had already passed by before Dr. L. saw him. When he arrived at his house he found him delirious, and he soon after became comatose. In the morning (fourteen hours after taking the poison), however, he awoke and held a conversation with his wife, and a little later with the doctor himself. In a little while he went to sleep again and became semi-comatose, but finally recovered under a proper treatment.

It will have been noticed that, although the atropia was given frequently and in over-doses, at no time did it produce any unfavorable effect. That it increased the number of respirations after each hypodermic injection has already been observed, but it seems that this improvement was very gradual in its action, when the large amount that was used in each dose is remembered. Such being the fact, we doubt very much if our patient would have been rescued from death if we had not been firm and bold in the free use of this powerful drug.

Prof. H. C. Wood's chapter on the employment of sulphate of atropia in opium-poisoning, in his excellent treatise on "Therapeutics, Materia Medica," etc., 1st edition, pages 225–6, says, "The first injection of atropia should be of such size that it could not possibly do harm; and

one-fortieth of a grain is in most instances a fair commencing dose. Very generally several repetitions of these are necessary, and the delicate practical point is to decide how often these repetitions shall be indulged in. I think that very frequently too much atropia is given, and believe that often a great deal of firmness is required in these cases not to use it too freely, especially since reliance is generally placed upon the pupils as a guide. They are, however, a very unsafe guide, as is apparent when it is remembered that, whilst opium contracts them by influencing the nerve-centres, atropia probably dilates them by acting on the peripheral nerves."

This practical point was well illustrated in our case: had we been guided by the dilatation of the pupils alone, the patient would probably not be alive to-day. That we did not err in giving so much atropia is shown, we think, by the ultimate recovery of this patient.

In conclusion, we will add that our patient received, between 8 P.M. and half-past three o'clock the next morning, fifteen hypodermic injections of atropia, amounting in all to three hundred and sixty-five minims, or equal to three-quarters of a grain and $\frac{1}{96}$ grain. The solution (gr. i ad ℥j) employed was freshly prepared by Mr. Thomas Swift, a reliable chemist and pharmaceutist of this city.

295 Franklin Avenue.

NOTE ON THE USE OF BICARBONATE OF SODIUM IN BURNS.

BY E. J. PRING,

Acting Assistant-Surgeon U.S.A.

HEARING that bicarbonate of sodium possesses a remarkable property for allaying the pain caused by burns, I resolved to try its virtues. Not long ago I attended a lady, the right side of whose face was very severely burned with boiling fat. Having made a saturated solution of the bicarbonate, I applied cloths wet with the solution, and kept them moist without removing them. In a very short time the pain was relieved permanently.

I continued the application for about twenty hours, and afterwards used simple dressing. The wounds healed quickly. I have used the bicarbonate on several other occasions, and with equally good results.

TRANSLATIONS.

Case of General Anæsthesia.—Dr. Adolph Strümpell, of Leipsic, communicates the following case (*Wien. Med. Presse*, 1877, p. 1484). A youth of sixteen was admitted to the hospital, October 11, 1876, complaining of frequent attacks of giddiness. Careful examination showed irregularity of breathing and pulse as the only objective symptoms. During November decided sensitiveness under pressure began to show itself along the spine, with jerking of the lower extremities, at first bilateral, later more marked upon the right side. By the beginning of December a right-sided hemianæsthesia was established, similar to the typical so-called hysterical hemianæsthesia. It differed in one respect, however, from the latter, in that while all sensibility on the right side of the body, all sense of smell on the right side of the nose and of taste on the right side of the tongue, were absent, and while hearing in the right ear was almost entirely lost, the right eye was perfectly intact. The left eye, on the other hand, was perfectly amaurotic. A little later, motor paralysis of the extensor digiti in the right hand and paralysis of most of the muscles of the right leg appeared, causing this limb to be dragged to a marked degree. In January, 1877, further disturbances of sensibility occurred, so that the patient at that time presented the following symptoms. 1. Complete cutaneous anæsthesia in all parts to every stimulus. 2. Similar anæsthesia in all accessible mucous membranes. Desire to empty the bowels and bladder was lost, and the peculiar sensations of hunger and thirst appeared to be absent. 3. Complete paralysis of taste and smell, amaurosis of the left eye, and deafness of the right ear. 4 Complete lack of muscular sensation. The patient, when his eyes were closed, could be carried about the room without noticing it. Lack of the feeling of contraction and of weariness in the muscles. 5. Reflex sensibility of the skin was preserved at some points and lost at others: thus, reflex sensation in the conjunctiva and in the vascular system was preserved, while inspiratory movements could not be brought on by pouring water down the back, nor could the patient sneeze.

Movements in the unparalyzed parts could only be made while the patient's eye was kept fixed upon them. When the eye was

bandaged, great uncertainty of movement resulted. Neither movements of single fingers nor complicated manœuvres could be performed. The patient attempted to guide his movements by the ear when the eye failed him.

The patient's connection with the outer world of sensation was kept up through two avenues of sense alone, one eye and one ear. If these last functions were suspended, if his only seeing eye were closed or his only hearing ear were stopped, deep sleep invariably resulted at the end of a few minutes. It was also easily possible to put the patient to sleep artificially, at any time of the day, by simply removing every sensory excitation. Herein is evidently a fact strongly confirmatory of the theory of sleep put forth by Pflüger and Heubel. The patient could only be awakened by an irritant in the form of light affecting his seeing eye, or by one in the form of sound affecting his hearing ear. x.

Syphilitic Infection of an Infant at the Time of Birth.—Prof. Weil (*Wien. Med. Presse*, 1877, p. 1483) relates the following case. A woman, who was known to have had flat condylomata about the labia, and who, when examined later, showed engorgement of the post-cervical, epitrochlear, and inguinal glands, gave birth to a perfectly healthy child. Four weeks later a sore appeared on the infant's face at the root of the nose. The latter continued healthy in other respects seven weeks longer, and then, eleven weeks after birth, a general maculo-papular syphiloderm made its appearance on the body, accompanied also by other undeniably syphilitic lesions. The infant recovered entirely under the use of appropriate remedies. Dr. Weil claims this as a case of *infectio per partum*, on the following grounds. It was a case of acquired, not hereditary, syphilis. The sore on the forehead was a true initial lesion, occurring after four weeks' incubation, and followed after a "secondary incubation" of seven weeks by a characteristic eruption, such as is observed in the syphilis of adults. The well-nourished condition of the child, as well as the absence of such usual symptoms of hereditary syphilis as coryza, indurations of the palms and soles, etc., is also in favor of the theory of infection at birth. Finally, it would be contrary to experience to assert that a mother suffering from such acute syphilitic symptoms should give birth to a child hereditarily diseased in whom the symptoms should occur so long after birth. The position of the initial lesion just where the child's head pressed upon the mother's diseased genitalia during parturition is an additional proof of the origin of the disease. x.

Treatment of Erectile Tumors.—Dr. Notta, having had an opportunity of treating a large number of erectile tumors, gives his ideas as to the various methods available for this purpose in *L'Année Médicale* (1877, No. 12). He divides them into two classes, cutaneous and subcutaneous. When called upon to treat the superficial variety in children who have not been vaccinated, vaccination offers perhaps the best method of treatment. A number of needles are dipped in vaccine matter to the extent of six millimetres, and this is allowed to dry. They are then thrust into the tumor to the depth of four millimetres, and at a distance of three millimetres from one another. Care should be taken to insert a row along the line of separation between the tumor and the healthy skin. After remaining in place about an hour, the needles are withdrawn, and some days later the punctured locality becomes the seat of a confluent vaccinal eruption. A month after, the eruption has entirely disappeared, or if there still remains a point here and there the application of a white-hot needle will finish the operation.

When for any reason vaccination cannot be practised, the double or multiple-crossed ligature may be employed with success, according to the method of Rigal de Gaillac. The tumor is strangulated by this procedure; the ligatures drop out at the end of four to eight days, leaving a granulating ulcer, which heals slowly. As regards the treatment of subcutaneous erectile tumors, one very good method is that by strangulation with vaccine-impregnated ligatures; other methods are the white-hot needle, or the injection of the perchloride of iron. Dr. Notta continues his observations in a subsequent number of *L'Année Médicale*, and gives other methods of treatment. x.

Albuminuria during Pregnancy.—C. H. Petit (*Centralbl. f. Med.*, 1877, p. 784; from *Annales de Gynécologie*) finds albuminuria a frequent condition during pregnancy, labor, and after delivery. Usually it appears during labor rather than in pregnancy. The albuminuria of labor is

to be distinguished from that of pregnancy; young primiparæ are particularly disposed to it. The larger the child the more abundant is the proportion of albumen in the urine. x.

Resorption through the Skin.—R. Fleischer (*Cbl. f. Med.*, 1877, p. 781) employed an especial apparatus in his experiments, composed essentially of a rubber covering made to fit tightly over the arm and admitting a certain quantity of fluid between itself and the skin. Attached to this was a glass tube to serve as an indicator. When water was experimented with, no absorption took place. With alcohol the same negative result was obtained. Chloroform inflamed the skin, which after five minutes' contact burned severely and became excoriated and scaly. Experiments wherein a solution of iodide of potassium or salicylate of sodium (1.2 to 1.3 per cent.), or of sulphindigotate of sodium in the same strength, was employed, gave a similar negative result. Rubbings with the ointments of iodide of potassium, veratrium, quinia, and morphia were employed; but the passage of these substances through the skin evidently did not take place, since no trace of them could be found in the urine. Inunctions with oleate of mercury followed by bandages for sixty hours gave traces of this metal in the urine. x.

Mammary Chancres.—At a recent meeting of the Société Médicale des Hôpitaux (*La France Méd.*, 1877, p. 735), M. Alfred Fournier presented two rare cases of mammary chancre. The first was that of a woman who had a phagedenic chancre on each mamma, with concomitant axillary adenopathy. Cause, nursing a syphilitic infant. In five days these sores had grown to be two or three centimetres in diameter, and were excavated to such a degree that the one on the right breast could contain a bean, while that on the left breast presented a cavity one to two centimetres in depth. These might be termed boring chancres. Though these sores seemed at first so grave in character, yet within a month they were entirely healed. The treatment was both local and general. During the inflammatory period baths, emollient fomentations, starch poultices, etc., were used. Later, when the inflammation had subsided somewhat, iodoform powder was applied, while iron and quinine were given internally.

M. Fournier did not begin the use of mercurials until the end of the third week. He thought the credit of the cure due to the local treatment. Iodoform has no influence upon the cure of these sores until the period of acute inflammation has passed.

The second case was that of a woman who showed an extraordinary multiplication of mammary chancres. As a rule, these are few in number. As in the first case, these chancres were communicated by a syphilitic nursing infant. Altogether there were twenty-three, seven on the areola of the left nipple, sixteen on the areola of the right nipple. The question might arise, Were these lesions really chancres, or were they herpes? M. Fournier concluded them to be chancres for the following reasons. 1. They appeared after contact with a nursling who had mucous patches of the lips. 2. They resembled the syphilitic chancre. 3. They gave rise to multiple axillary adenopathy, well marked, indolent, non-inflammatory. 4. The subsequent phenomena justified the diagnosis.

In response to a question, M. Fournier said that the first case was followed by benign syphilis, the second by malignant. Formerly a mild and a severe syphilis were described, but at the present day syphilis is acknowledged to be always the same, the mildness or severity of its course depending upon the soil in which it is planted. Phagedæna is never the progeny of phagedæna. A case was quoted of a mason who had a small chancre, followed by benign syphilis. His wife contracted the disease from him, and suffered subsequently with a gangreno-ulcerative syphiloderm, lost her nose, part of the superior maxilla, the cranium became denuded, gummata of both extremities followed, and the w man finally succumbed, although under Fournier's care. x.

Suppressed Secretion of Milk re-established by Electricity (*Jour. des Sci. Méd.*, No. 12, 1877).—The current employed was mixed, and from an ordinary Gaiffe machine, the sponge being applied directly to the mammary gland so that the current should pass through it sometimes from above below, sometimes from within outwards. The length of the application was about twelve minutes for each mamma. After the fourth application the woman could give the breast twice, and from that day the secretion was established. x.

Herpes Zoster of the Genitals.—Dr. Peltier, of Sedan, sends notes of the following case to the *Union Médicale du Nord-Est* (No. 11, 1877). The patient, a married woman, 48 years of age, subject to facial neuralgia, and who had begun to menstruate irregularly, was seized with pain in the groin and genital region. This lasted four days, and then a patch of large vesicles appeared on the right labium majus, covering a space of two or three centimetres, and situated on an erythematous base. Similar patches of eruption could be observed in the fold of the groin and about the cutaneous orifice of the inguinal canal. The eruption was undoubtedly herpes zoster seated along the distribution of the genito-crural branch of the lumbar plexus. Quinine was administered without much effect, and subsequently recourse was had to hypodermic injections of morphia, which quieted the pain without completely putting an end to it. At the end of about two weeks, the pain being still persistent, the patient suffered from an attack of metrorrhagia (not having menstruated previously during four months); the hypodermic injections were stopped, but the pain had disappeared with the beginning of the discharge, and returned no more. Dr. Pelletier suggests that the cause of the eruption in this case was either excitation of the uterus transmitted through the anastomoses of the lumbar plexus to the lumbar ganglia, or else compression of the genito-crural nerve by the tumefied pelvic ganglions. x.

Deafness as a Symptom of Bright's Disease.—Dieulafoy (*Soc. de Biol.*; ext. in *Berliner Klin. Wochens.*, 1877, No. 42) states that in twelve cases of nephritic disease he met with two of complete deafness, three of half-deafness, and two of disturbances of hearing of other kinds, tinnitus, etc. In some cases there was also more or less pain in the ear. In one case perforation of the membrana tympani was observed. Dieulafoy, who does not regard these complications as accidental, thinks them due to œdematous chronically infiltrating or hemorrhagic changes in the tympanic cavity and membrane. x.

Esmarch's Method applied to the Treatment of Diseases of the Extremities.—In a lecture on this subject, delivered before the Berlin Medical Society (*Berliner Klin. Wochens.*, 1877, p. 647), Cohn recommends the use of Esmarch's elastic bandage in the treatment of certain affections of the extremities, and gives notes of several cases treated in this way. The first was a subcutaneous phlegmon of the toe, with abscess, affecting primarily the toe, but involving most of the foot. The elastic bandage was applied according to the method laid down by Esmarch, but could only be borne fifteen minutes, on account of the pain which it produced. On its removal, and as soon as the normal circulation was once more established, an improvement in the affected part was observed. The patient could only be persuaded to submit to two more applications of the bandage, but was much improved thereby. The second case was that of a maid-servant, who had injured her arms by overwork so as to cause an inflammatory swelling, seated in the muscular tissue of the right forearm, and very painful. When the normal circulation returned to the limb, after the first application of the elastic bandage, the pain had in a great degree disappeared, and on the following day a second application was made, after which the patient returned to her work entirely cured. The third case was that of a child between three and four years of age, who had suffered for a year and a half with a white swelling in the knee. The treatment, which is of interest, and is detailed in full in the report of the lecture, ended, after two months, in recovery. x.

Excretion of Lead by the Liver in Saturnine Poisoning.—A. Annuschat (*Cbl. f. Med.*, 1877, p. 784; from *Arch. f. Exp. Path.*) found that, after the administration of one gramme of acetate of lead in solution by the mouth, the bile poured out through a biliary fistula contained lead in a few hours, and afforded as much as 0.0112 grm. within the succeeding twelve hours. In some experiments lead was also found in the contents of the stomach and intestine after death. Out of 0.5462 grm. lead taken, there was found after five hours still 0.4788 grm. in the contents of the stomach and intestine, after fourteen and a half hours 0.353 grm. In another series of researches acetate of lead was found in the bodies of rabbits for three to twenty days after administration. In the bile, however, lead was present only for a day or two after the last administration. In the liver, on the other hand, lead was found in considerable quantity for thirteen days. x.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, MARCH 16, 1878.

EDITORIAL.

HYPODERMIC MEDICATION.

THERE can be no doubt that the addition of hypodermic medication to our means of combating disease was a very valuable one, but there is as little doubt that evil has been wrought by the abuse of the method. Not long since, a Western medical professor (and their name is legion) came under our care with his arms a mass of ulcers from hypodermic injections of quinine, not one of them having been really required or justifiable. It is not merely the danger of local trouble that is incurred in this method of administration, but there is always some risk of inordinate constitutional results.

A case is stated (*Louisville Med. News*, February 23) to have recently occurred in Washington in which death was produced by a third of a grain of morphia. This is, we believe, the smallest recorded dose of morphia which has proved fatal in the adult. Two cases of death from half a grain given hypodermically have, however, been previously reported. We once saw one-sixth of a grain injected into the arm of a woman cause unconsciousness in three minutes, with subsequent persistent and most alarming symptoms, which only yielded after a night's anxious and careful work. In that case a third of a grain would almost certainly have caused death. In our opinion, a fourth of a grain of morphia should be considered as the maximum hypodermic dose of the drug, not to be exceeded except under very urgent and peculiar circumstances.

No care can, however, in this case, absolutely insure against disagreeable consequences, and, whilst the risk is slight, it should not be thoughtlessly taken. Indeed, the rule should be imperative not to employ hypodermic medication unless with some definite prospect of special advantage from the method of administration.

CORRESPONDENCE.

LONDON LETTER.

SUCH of your readers as were interested in the brief abstract of Prof. Burdon Sanderson's lecture, given in the last letter, may feel inclined to know a little more about the subject of the infective processes of disease. The next part of the subject taken up was the question of the existence of bacteria in the living organism. It has been proved that bacteria can enter the body by the pulmonary mucous membrane and by the lining membrane of the alimentary canal, and yet "the circulating blood never contains septic bacteria or their germs." An experimental investigation was made as to the existence of bacteria in the viscera. The abdominal viscera or rather the liver and kidneys of a healthy rabbit, killed quickly, were cut out and permitted to drop into boiling paraffine, which was then covered with fluid turpentine to prevent the possibility of contamination by the cracking of the cooling paraffine. When opened after a day or two the outer portion of the organs was found cooked of course, but within is a "soft red kernel of uncooked tissue." In this bacteria were always found in vigorous development, indicated by their large size, countless numbers, and active movements. The lecturer went on to say, "What is observed is (1) that by means of the portal circulation germs must be continually entering the general blood-stream; and (2) that no bacteria exist in the circulating blood, or at all events only a stray one here and there. The alternatives are, either that the bacteria are formed and are immediately afterwards destroyed (for no provision exists in the organism for their elimination), or that they are not allowed to germinate, *i.e.*, that the conditions under which they are placed in the living organism are such as to prevent their development. The question which of these alternatives is the true one, I shall not attempt to answer definitively. There are, however, considerations which seem to me to render the first of them more probable than the second." As to the fact that common septic bacteria cannot live in the circulating blood of a healthy animal there is no doubt. As to the why of this, various explanations have been ventured, but none can yet be accepted as satisfactory. In pleural and peritoneal inflammations in rodents it invariably happens that the exudation-

fluids contain swarms of bacteria, a fact which stands in a certain relationship to the existence of bacteria in the viscera, though not in the blood. Prof. Sanderson then went on to describe a practical illustration of the relation of bacteria to disease. In certain animals in order to render them more acceptable to the table the testicles are destroyed by twisting the spermatic cords without making any external wound,—an operation termed *bistournage*. After this the testicles shrivel up. Of the numerous operations so performed, none are ever followed by infective consequences. But if previously to the operation a dose of septic material had been introduced into the blood-stream, acute diffuse inflammation of the parts around the organs follows. A poison present in the blood-stream determines in the injured part an infective inflammation. "The immediate cause of the septic inflammation of the testicle was evidently the injury to which it had been subjected; but no infective process would have developed itself—nay, more, no inflammation whatever would have occurred—had it not been that masses of septic matter were at the time of the injury circulating in the blood-stream, some of which were conveyed to the injured part and then became centres of infective action. But if the septic liquid were carefully filtered before injection, so as to deprive it of its visible particles, bistournage could be performed without unfavorable result. The filtrate, though obviously still contaminating, was quite innocuous. It appeared to be essential to the morbific fruitfulness of the seed sown, that it should be enclosed in particles of sufficient size to lodge in the capillaries of the injured part."

In his next lecture Prof. Sanderson reviewed the germ theory, contagium vivum, and specific infections. He said of the germ theory, it "teaches that certain organized and living particles of extreme, if not ultra-microscopical, minuteness, which are always suspended in the atmosphere, are in such sense the causes of the suppuration and other destructive changes which interfere with the healing of a wound; that (1) if these organisms are excluded, the wound must enter at once on the processes of reparation; and (2) that if these organisms are present, it cannot so heal; and consequently that the whole secret of the successful treatment of wounds consists in the exclusion of that finest form of atmospheric dust, which, whatever be the size of its particles, has been identified by physicians as by mycologists with the contaminating agents in question." The lecturer then went on to speak of the value of the method of treatment of wounds which is, or professes to be, founded on the germ theory. He said, "if it had been possible to contrive and carry out a series of experiments for the mere purpose of testing it, we could have no better proofs than have actually been afforded by hospital practice." Having recently been in Germany, he saw the *Lister'sche Behandlung* as carried out by Prof. Volkmann of Halle. This is what he says: "It is impossible to conceive a more favorable locality for making an experiment of such a nature; first, because the extraordinarily rapid progress of the manufactures of the town has rendered the hospital too small for its requirements, and consequently the proportion of severe cases (as I was able to observe in going round the wards) was very large; and secondly, because the hospital itself is not perhaps *the* worst but *one* of the worst that I have ever seen. Situated in the very centre of the town, overshadowed by a huge ecclesiastical building, and having for wards low rooms, each of which communicates with a latrine and has its beds so close that there is scarcely more than room to pass between them, the hospital presents every circumstance likely to lead to the development of the worst traumatic affections. It is in such wards as these that compound fractures, amputations, and resections have been treated with a success which is up to the best results of London practice. Looked at from a pathological—that is, from a scientific—point of view, the successful trials which have been made of Lister's treatment during the last few years in the great hospitals of Europe may be regarded as separate experiments on a very large scale, the whole forming a series of experiments all of which point very distinctly to the same conclusion, that conclusion being, of course, that a serous surface may be exposed, and that living tissues may be incised, or even subjected to serious mechanical injury, without these parts becoming foci of infective inflammation,—without any further reaction taking place than is necessary for the constitution of the reparative process." After pointing out the revolution, as regards results, wrought at Halle, Munich, Strasburg, and elsewhere, by the adoption of the Lister method, Prof. Sanderson says, "In judging of the value of a therapeutical method the one and only criterion is success. The question of primary importance is not whether bacterial germs are killed or sterilized, but whether the pathological results of septic infection are prevented, so that the wound is free from inflammation, the constitution free from fever."

It appears that there have been instances where the antiseptic treatment caused the patient to be free from fever, pain, and inflammation, "but yet organisms exist in the discharges. It would appear that although the method was carried out sufficiently perfectly to accomplish its end (the absence of fever, pain, and inflammation), nevertheless organisms had found their way in to the discharges, but that here, as elsewhere, being placed under conditions hostile to their development, they had been harmless." Prof. Sanderson said in conclusion, "The first

principle that suggests itself on pathological grounds relates to the avoidance of conditions in the wound itself which favor the development of infectivity. Considering that the development of infective action in a wound (supposing it to depend on the evolution of successive generations of organisms) must be a question of time, and that the circulating blood and living tissue are the most powerful colytics that we know in restraining and preventing that development, all methods which tend to prevent the accumulation of blood or liquids in wounds must be of great importance, not because these materials are in themselves incapable of being absorbed or organized, but because, if accumulated in quantities, they are withdrawn from the colytic influence of living tissues. The second principle I take to be the avoidance of infective contamination, in connection with which the question at once arises of the source of such contamination. If it be not atmospheric particles, what is it? Bear in mind that wherever bacteria have been vegetating for some time in moisture containing the material for their growth (and we have seen how simple their requirements are), there infective virus is being elaborated; consequently, that ordinary filth (of which the only scientific definition is that it consists of the products of bacterial evolution) is more or less virulent or infective, according to its development. Hence if against all filth there lie a *prima facie* presumption that it is infective and a source of danger, scrupulous cleanliness must be essential. I need not add that in antiseptic surgery and in the practice of those surgeons who have accomplished the greatest successes in the combat with traumatic infection, this principle is so well recognized that, in future, we may hope to speak of 'surgically pure' instruments as familiarly and with as much significance as we now speak of 'chemically pure' substances." These lectures have been well attended by the profession, and mark our advance in a very interesting department of science closely linked with medicine.

In the early part of these lectures it was stated that when a certain dose of septic poison was injected into an animal, muscular rigors followed, and with them a discharge of fæces first, and then blood and mucus, from the bowels. This observation is of value as showing that when poisonous effluvia from decaying matter, and especially decomposing muscle, or other nitrogenous tissue, are taken into the system, smart diarrhœa, soon assuming a dysenteric character, is a consequence and probably an eliminative process. In the old days, before the passing of the present Anatomy Act, bodies for the purposes of dissection had to be procured as they could. Scarcity led to high prices, and high prices led some adventurous fellows to follow the disgusting occupation of body-snatching. Experience made them proficients at their business, and a midnight excursion to a solitary churchyard brought back the desired corpse. These men found that if in doubling up the body to force it into a sack for the purpose of removal they inhaled the gas given off by the stomach of the corpse, they were sure to suffer from malaise with severe headache. Stimulants gave no relief, and a dose of purgative medicine was the only thing that did them good. There are a good many facts which point to the eliminating action of the bowel when the products of animal decomposition are inhaled. The peculiar smell of the dissecting-room is commonly found in the fæces and flatus of those engaged in such rooms; and the same thing occurs afterwards when a post-mortem examination has been made. In diarrhœa arising under such circumstances, it may be questioned how far it is desirable to attempt to arrest the discharge, at least early on. There are good grounds for supposing that such arrest if it could be achieved would be very undesirable,—that in fact it would be checking an excretion as truly conservative as uræmic diarrhœa when the action of the kidneys is almost entirely suspended. Many apparently morbid processes are not to be interfered with rashly, and often much harm is done by hasty assumption that a discharge is a malady, when really it is a very useful compensatory action and as such not to be interfered with. The common tendency to attempt to check diarrhœa as soon as it occurs is, fortunately for the individual, often fraught with failure. When successful it is not rarely the means of insuring more serious mischief. When called in to a case of diarrhœa, the first thing the practitioner should do is to satisfy himself as to the nature of the discharge. If on careful inquiry he finds that the diarrhœa has been copious and free, and that the offending matter has been effectually removed by it, then it may be well to give a little laudanum and sulphuric acid, or, if the fecal motions are acrid, instead of the acid a little chalk. But where the motions are small and where relief is not obtained by them, then the aspect of the case is totally different. Here there is an ineffectual attempt to dislodge or remove some irritant matter. The discharge from the bowel is commonly set up below the seat of the irritation, and thus is inoperative for its removal. If the secretion from the bowel be started at a point above the source of irritation, the discharge will ordinarily be sufficient to dislodge it, and the diarrhœa is a useful and salutary process. But it may be insufficient to attain this end, or it may be set up below the source of irritation, in which case the readiest way to relieve the diarrhœa is to administer a purgative, which will act upon the whole of the bowel, including that above the source of irritation,—either castor oil or rhubarb. The last-named agent is very useful in such cases, as its primary action is to

cause free secretion from the bowels, while its remote or secondary action is to lock up the bowels. Twenty grains of rhubarb will often prove a most efficient means of doing away with an inoperative diarrhœa.

Speaking of rhubarb, there is one point connected with its administration which is worth while remembering, and that is its tendency to color the urine. A few weeks ago a surgical colleague came into my room at the hospital with a vial full of urine. It was dark red, and presented exactly the appearance of urine containing a considerable proportion of blood. In fact, there existed no doubt, in either his mind or mine, that it was a specimen of bloody urine. On proceeding to boil it, instead of losing its color it remained unchanged. The addition of nitric acid to another portion produced no change of color. On dropping a few drops of liquor potassæ into another portion it became of deeper hue; each drop of the liquor potassæ producing an immediate change of hue, just like dropping pure blood into a bloody fluid. The specimen was put by for further examination, but it unfortunately came to grief, so any further examination was impossible; and as the patient has not turned up again, no more specimens of this remarkable urine, so exactly like a blood-laden urine, have been forthcoming; neither, of course, has it been possible to get at any history of what the man had done to his water, or what he might have taken. On mentioning the matter to Dr. Lauder Brunton, he said he once met a specimen of urine with the same characters and reactions, and in that case the patient had been taking rhubarb.

Diarrhœa is so very commonly regarded as a malady to be checked, that the following case may be found instructive. I had it from a surgeon of eminence for diseases of the rectum. He was consulted by a lady who was much troubled with her bowels. When dressing, she would have to comply with the demand upon the rectum, after breakfast she would have to retire, and so on five or six times every day. She had been treated most elaborately for diarrhœa, and the surgeon informed me he had retained a prescription given to the lady by one of the most eminent physicians in London, under whose care she had been for some time. Previous to that she had been actively treated by her doctor in the country, who in despair had sent her up to town. As she got no better for the orthodox chalk, catechu, and opium mixture of the physician, she was prevailed upon to consult this rectal surgeon. He found that she had great tenesmus, and that after her repeated visits to the closet during the whole day she only passed about an egg-cupful of thin fluid fæces, without mucus or blood. On making an examination by the rectum, a solid fecal mass was found, upon which the finger could make no impression, so dense was its consistence. This at once explained the persisting desire to go to stool, and also the other fact of the liquid fæces, for nothing but a fluid could pass the obstruction at the outlet of the gut. The lady was put under chloroform, the anus was dilated, and she was delivered,—for delivery it amounted to,—by means of a pair of short midwifery forceps, of a mass of solid fæces in shape and form like a five-inch Bologna sausage. It was of clay-like consistence, and consisted of the bran of wheat meal matted together with vegetable fibres and containing a quantity of mucous corpuscles infiltrated with lime-salts. The patient at once lost her distressing tenesmus and had no further necessity for the diarrhœa mixture. She had for long eaten bread of whole wheat meal for the purpose of keeping her bowels open, and from this were derived the bran-scales of the fecal mass. The case is a very instructive one, illustrating as it does how even a physician of eminence may misinterpret a series of phenomena when under the influence of a strong preconception as to the nature of a malady.

J. Milner Fothergill.

PROCEEDINGS OF SOCIETIES.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

Thursday Evening, December 27, 1877.

The President, Dr. H. Lenox Hodge, in the chair.

Case of circumscribed epithelioma of the larynx. Presented by Dr. J. Solis Cohen.

THE specimen is from the body of an unmarried English lady, aged about 50 years, of a long-lived family (both parents still living, over eighty years of age, and engaged in active and laborious business), who began to be troubled with a cough and occasional difficulty in deglutition about fifteen months before death (December 8, 1877). The lady was treated for a while for bronchitis, and on placing herself under the care of her family physician, Dr. Macpherson, about December, 1876, that gentleman on a laryngoscopic examination detected an enlargement of the epiglottis, apparently œdematous. Little change took place in the condition of the patient until February of the present year, when she was garroted by a burglar whom she discovered in her bedchamber, after which her symptoms rapidly increased in severity, the cough becoming more and more troublesome, and deglutition getting so difficult that a proper amount of nourishment could not be swallowed. By May 3, at which date I first saw her in consultation with Dr. Macpherson, the impediment to swallowing was so great that we determined to commence at once with the

systematic exhibition of nutritive enemata, and from that time forward, nutrition was carried on in that manner almost exclusively, there being but rare intervals at which swallowing was at all practicable, and the amount ingested being too insignificant to supplement the enemata in the least. Laryngoscopic inspection at the date just mentioned revealed a fungous-looking mass involving the entire free portion of the epiglottis and the left aryteno-epiglottic fold. There was considerable enlargement on the left side of the neck, greatest and hardest in the region of the carotid glands. The diagnosis was epithelioma, and this was confirmed by microscopic examination of several fragments which were removed for the purpose, some of which were mounted by Dr. Seiler. I removed the entire free portion of the epiglottis, but made no attempt to remove the mass from the aryteno-epiglottic fold, as it was impracticable to determine how far the disease extended, although the character of voice was such as to indicate integrity of the vocal cords. After removal of the epiglottis the patient was able to swallow occasionally for some weeks. She was placed upon arsenic, quinine and brandy being administered per rectum in the nutritive enemas.

The remaining growth was treated by astringents, applied locally by Dr. Macpherson, to restrain hemorrhage and constringe the vessels. The difficulty of swallowing soon increased to absolute aphagia: the patient became gradually weaker, and from time to time expectorated detritus from the mass. Towards the close of July, dyspnœa became superadded to the symptoms, and this increased to such an extent that I was suddenly summoned, late in the evening of August 9, to perform tracheotomy, which I did without anæsthesia, with the assistance of Dr. Macpherson and my neighbors Drs. Mears and Turnbull, Jr., who kindly accompanied me to the residence of the patient for the purpose. The immediate effect of the operation was, the dyspnœa ceased, and, as I am informed by Dr. Macpherson, ceased for good. The patient made a rapid recovery from the operation, the wound healing with unusual promptitude, despite some local gangrene of the fistulous tract, which for a few days blackened the surface of the silver tube introduced. Swallowing, however, was not improved, and everything attempted to be taken into the stomach passed through the tube, owing to a cause which will be apparent on examining the specimen. The improvement immediately succeeding the operation was soon followed, as I am informed, by gradual progressive emaciation, with frequent discharge of fetid débris from the larynx, both by mouth and by tube; and the patient died exhausted on the evening of December 8, 1877.

At mid-day on December 10, Dr. Morris Longstreth made a post-mortem examination in the presence of Dr. Mears, Dr. Macpherson, and myself, and removed the parts exhibited to the Society, comprising the larynx, a portion of the trachea including the wound of tracheotomy with its overlying integument, the posterior portion of the tongue, portions of the palatine arches, pharynx, and œsophagus respectively, and two enlarged and degenerated glands from the left carotid region. The connective tissues were quite dense. The destruction is most marked on the left side of the larynx. The whole of the aryteno-epiglottic fold and its constituents down to the lower border forming the ventricular band (false vocal cord) of that side is destroyed, exposing the sac of Hilton from above, and leaving the ventricle and ventricular band intact. It is through this route that food gained access to the larynx on swallowing. The cartilages and vocal cords upon both sides are intact. The stump of epiglottis (chiefly the petiolus), which is the only portion of that structure remaining, appears not to have been involved in the morbid growth, but there are tracks of ulceration extending completely around it. The remaining portion of the larynx, the tongue, palatine arches, pharynx, and œsophagus, appear to be free from disease.

There were two lymphatic glands lying in the line of the carotid artery of the left side, at the level of the larynx, which were enlarged. On section they showed cheesy degeneration in nearly their whole extent. The microscopic examination made by Dr. Longstreth showed abundance of oil drops, lymphatic cells, highly granulated and fatty, and also some crystals of cholesterine. There were also seen numerous large flat cells, containing a single large granular nucleus. These resembled pavement epithelium, but were, however, of greater thickness. The tissue surrounding the glands was very firm, dense, and white in color. Under the microscope it showed fibrous tissue with numerous small nuclei.

There was no microscopic evidence of an extension of the malignant disease to the glands or to the surrounding tissue.

The limitation of the disease to the larynx stamps it as primary without doubt; the removal by ulceration of all the abnormal growth stamps it as circumscribed.

Report of the Committee on Morbid Growths.—"The larynx presented by Dr. Cohen, and referred to the Committee on Morbid Growths, shows from a microscopic examination of a thin section, taken from the remaining portion of the epiglottis, pegs formed of epithelial cells penetrating into the submucous tissue; here and there some of the cells forming the pegs are arranged concentrically, constituting the so-called pearly bodies. We therefore find an infiltration of the submucous tissue by an epitheliomatous growth.

"January 10, 1878."

Case of stenosis of the aortic valves, with extensive calcareous degeneration reaching nearly to the mitral valve. By Dr. J. Solis Cohen.

The case from which the specimen was obtained was under my care at the German Hospital from October 27, 1877, to December 7, 1877. The patient was a medium-sized man, 50 years of age, of light complexion, and by occupation a regulator of gas-meters. He believed himself to have been healthy until about six months before admission, at which time he was taken ill with malarial fever, followed by icterus, ascites, and great general debility.

His physical condition on admission was deplorable; icterus was very marked, ascites was considerable, with serious dyspnœa, anorexia was complete, and there were intense presystolic and post-systolic cardiac murmurs audible before the ear reached the chest. The diagnosis was probable cirrhosis of the liver, with stenosis of the aortic valves.

Under the external use of nitromuriatic acid, and the internal administration of nitromuriatic acid, digitalis, and jaborandi, the ascites subsided rapidly, the icterus diminished, and the appetite and digestion became good, and under a subsequent invigorating treatment with nux vomica and cinchona, improvement in the general health was very prompt, and the patient was discharged, with injunctions to resume work cautiously, and never to undertake more than half a day's work in the twenty-four hours, complete retirement from labor being out of his power.

Considering himself well, he resumed work at full hours, and one week later word was brought to the hospital that he had been found dead in bed that morning. A post-mortem examination of the body was made by the residents of the hospital, Drs. Berlet and Mellersh, who brought me the heart now exhibited, and reported that the body generally was in good condition, with plenty of adipose tissue, the liver was cirrhosed, the heart was stenosed at the aortic orifice with calcareous deposit, which extended beyond its limits; and the remaining organs appeared normal. I am indebted to Dr. Morris Longstreth for the following description of the specimen:

The heart is moderately enlarged, the enlargement being confined to the left side, the right ventricle appearing as a patch on the side of the organ.

The *right* auricle and ventricle, with the openings and valves on that side, were normal.

The *left* auricle was somewhat enlarged, its wall about normal, certainly not thickened; the endocardium appeared thickened somewhat.

The *mitral orifice* was found dilated considerably. The valvular leaflets are nearly normal, and likewise the tendons.

The *cavity of the left* ventricle is dilated, and the ventricular walls about normal or perhaps slightly thicker.

The chief disease is at the *aortic* orifice; this is narrowed to a slit-like orifice, allowing merely of a nickel piece being passed edgewise through it. The two anterior cusps were firmly united as far as their middle part along their line of mutual contact. The posterior cusp was still slightly flexible at its posterior part. There is a large calcareous deposit, extending not only throughout nearly the whole extent of the semilunar valves, but reaching down to the origin of the mitral leaflet.

The aortic sinuses are reduced in size; the aortic wall at this portion is nearly normal, except at a few points near the opening of the coronary arteries, where are seen small atheromatous changes. These arteries have their walls normal, and surrounded by a thick bed of fat.

The ascending part of the aorta is enlarged slightly, though the wall of the vessels is smooth and of normal texture. Atheromatous changes are visible where the great vessels leave the arch of the aorta.

Microscopic examination of tissue of left ventricle showed heart-fibre highly granular and fatty; the striation had largely disappeared.

Dr. Longstreth said that the specimen was a good illustration of one form of aortic valvular disease with the consecutive changes resulting in the walls and cavity of the left ventricle.

The calcareous degeneration, with thickening and stiffening of the flaps, has narrowed the aortic orifice to such an extent that it is a wonder any amount of hypertrophy of the muscular wall was able to propel the blood into the aortic system. From the advanced stage of the disease of this valve, the deviations from the normal in the left ventricular wall differ from those we find in simple moderate aortic stenosis, and approach those resulting from insufficiency of this orifice. In pure aortic stenosis, due, for example, to calcareous deposit limited to the peripheral part of the cusps, whilst their free borders remain flexible, hypertrophy of the wall of the left ventricle takes place, and this change is usually almost the only alteration in the form of the heart.

If, however, as in this specimen, stenosis becomes extreme, the final state is that the same disturbing force acts, or rather the same state of blood-distribution is conditioned, as in insufficiency of the valves, viz., the quantity of blood to be expelled by the contraction of the left ventricle is greater than normal. The mechanism of the condition in the two cases is very different. In insufficiency, the increased amount comes from a reflux of blood once expelled into the aorta; in stenosis, it is from blood unable to pass the narrowed opening. This condition is the ter-

minal one resulting from the two forms of change at this valve. Let us see by what steps the condition is reached. In specimens where regurgitation is at death a well-marked phenomenon, the initial step in the morbid change is invariably an obstruction, however slight, to the exit of blood. The only exception to this rule is formed by examples of sudden rupture of a semilunar flap. The endocarditic process, with the subsequent vegetations on the leaflets, forms a sufficient resistance or stimulant to lead to over-action of the heart-muscle,—the first step, therefore, in hypertrophy; later, if these obstructions grow greater, the hypertrophy increases; later still, the retraction of the flaps allows regurgitation, itself to be viewed as an obstruction to the onward flow of the blood. But regurgitation is now occurring into a hollow muscle, no longer of its ordinary normal thickness, but hypertrophied and accustomed by previous over-action to propel the blood with more than normal force. The small amount of regurgitated blood, at the beginning, serves, by the slight over-distention of the ventricle, to stimulate the strengthened muscle to still more forcible expulsive effort. The result is, therefore, hypertrophy of the wall, with temporary greater than normal expansion, at the height of diastole, of the cavity, but not permanent dilatation.

Dilatation, which invariably comes with insufficiency at this orifice, has its cause in the degeneration of the heart-fibre, dependent on two factors: 1, the over-action and the too frequent action lead to greater waste of nutrition than time allows for repair,—both alone insufficient to produce dilatation; 2, the lessened flow of blood in, and the increased heart-tissue to be nourished by, the coronary arteries, furnish the further needed cause in the process of decay. Degeneration of the heart-muscle means death; and, so soon as the amount of blood within the cavity rises in quantity above that which the muscular force is able to expel, the circulation must cease.

In stenosis, as in regurgitation, while the final condition, viz., degeneration and dilatation, is the same and has been arrived at by a like gradual process, the cause of accumulation of blood in the left ventricle is totally different.

The steps of the process are likewise very different; throughout the disease, when stenosis alone has been present, the continual tendency is to hypertrophy, dilatation occurring only in the last stages and after stenosis has become extreme. The gradual formation of the obstruction is as gradually equalled by compensatory hypertrophy: so long as the balance between opposition and muscular power is maintained, the cavity is emptied at each systole and no force is at work to produce dilatation. When the balance topples by the obstruction growing greater, degeneration allows of dilatation of the over-worked and insufficiently nourished muscle. It is probable that this result comes sooner in insufficiency than in pure stenosis, for more reasons than one: in the first place, the ventricular cavity fills more quickly and stimulates the muscular fibre to a quicker-coming systole, so that in regurgitation the pulsations are more rapid than in pure aortic stenosis; the pause between the contractions—the time of repair—is lessened; secondly, the coronary circulation is less well maintained under conditions of regurgitation, and is less perfect, in a rapidly contracting heart.

So long as the hypertrophied muscle continues equal to the demand made of it, the circulation is maintained at the normal in pure stenosis, and the patient presents no symptoms of the grave lesion, the physical signs alone making us acquainted with the condition; overwork, physical or mental, or other disturbing causes, however, are very apt to occasion temporary cardiac symptoms, which disappear with rest and quiet.

Death occurs in the marked cases of pure stenosis, as he believed was the case with this specimen, before the extremes of degeneration and dilatation result which we see in the organ from other forms of disease. The obstruction becomes so complete in a valve whose cusps remain rigid and expanded alike in diastole and systole, that the muscle, unable to move the blood through the slit-like opening, is paralyzed, and the paralysis comes suddenly; the heart stands still, and death is by syncope.

The clinical history of the case agrees with the common experience that *aortic* valvular disease brings far greater danger of *sudden death* than morbid conditions at any other valve. This observation depends on the difference in construction of the flaps of the aortic orifice, as compared with the mitral leaflets, and on its position relative to the general circulation, as compared with all the other orifices. The ready retroversion of an aortic cusp or its rupture or laceration when diseased, followed by sudden emptying of the aorta and lowered blood-pressure in the aortic system and over-distention of the left ventricle, explains how slight is the bulwark holding back sudden death from syncope. It is not strictly accurate to trace death, when it comes through such an accident at the aortic orifice, to syncope alone. True, the rupture of a flap empties, or so lowers the blood-pressure in the aortic system that cerebral anæmia and syncope occur. The symptoms in such cases prove it to us: the patient staggers and falls, like one shot. But one does not die from a single failure of systole, nor does death come instantly even from rupture of the aorta within the pericardium; both conditions tend equally either to lower blood-pressure or to empty the aortic system. In these two instances, the aortic valves being perfect, the succeeding systole restores blood-pressure,

in the first case completely, in the second instance at least partially, so that fatal syncope is averted, and death comes slowly from hemorrhage. The true explanation lies in the condition of the left cavity itself. The sudden reflux of blood from the aorta, while the mitral orifice is delivering its normal quota, so stretches the ventricle that its unhypertrophied muscle stands still or ineffectually struggles with the newly-imposed burden; no blood, or very little, is expelled into the aortic system; after a few flutters the heart ceases action.

The specimen which Dr. Cohen has shown this evening is a marked contrast to one which he obtained at a recent autopsy at the Pennsylvania Hospital. The general alterations in the form of the heart, as well as the symptoms, were different; but especially did he wish to allude to the difference in the mode of death, although in the two specimens the disease at the aortic orifice was the same, viz., nearly complete obstruction without insufficiency. In the specimen to which he referred there was in addition mitral narrowing and rigidity (stenosis and insufficiency). From the coexistence of the valvular disease at two orifices, or rather from the presence of mitral disease, a difference in the form of the heart, in the two cases, was a necessity; the symptoms and the physical signs were marked by a preponderance so complete of those dependent on the mitral lesion that any one, seeing the case for the first time in its terminal stage, would have failed to detect the very marked aortic disease. There is also nothing unusual in this observation, which accords with the not infrequent experience in valvular lesions at these two orifices. But the chief contrast between the two consists in the respective modes of death: in one case, after a comparatively symptomless course, with only disturbances of the circulation resulting from overwork, a patient, who felt so well that in spite of warnings he continued his usual occupation, dies without any of the common premonitory symptoms of heart-disease; in the other case, the aortic disease commenced prior to that of the mitral, and so far as is known of the patient's history he was free from symptoms of disease, except temporarily after severe exertion, for a considerable period. Later, during the time he was under observation, the mitral lesion caused the most marked difficulties. The narrowed auriculo-ventricular orifice, with, at the same time, insufficiency of the valve, caused dilatation and hypertrophy of the left auricle, pulmonary congestion, and finally also general venous congestion. The backing up of blood into the right heart led to hypertrophy and finally dilatation of each of its cavities, with dilatation of the tricuspid orifice. Death resulted from asphyxia, with its prolonged agony. It was a death from the right heart, not from the left, as in Dr. Cohen's specimen.

GLEANINGS FROM EXCHANGES.

The Pancreas as a Dietetic Remedy (*The Clinic*, January 26, 1878).—Dr. H. Engesser has succeeded in obtaining an active infusion of the pancreas which he has tested in its action in impaired digestion, and he comes to the following conclusions regarding the indications that are favorable to its use:

1. In all cases of dyspepsia produced by abnormal acid production. 2. In flatulent dyspepsia and frequent gaseous eructations smelling like sulphuretted hydrogen, the cause existing in an anomaly of the juices secreted in the upper part of the small intestine. The author claims that to this form of dyspepsia are due many diseases of the general system, such as rachitis, arthritis, scrofulosis, and diabetes mellitus. 3. A form of dyspepsia followed by anæmia, emaciation, and decline, which is probably caused by faulty composition of the digestive juices, as a result of which food is not digested and assimilated in a proper manner. 4. Those forms of dyspepsia that are secondary to constitutional disturbances, to anæmia, chlorosis, leukæmia, pernicious anæmia, scrofulosis, and tuberculosis. These expectations are, to say the least, sanguine, and, if practice carries them out, dyspeptics can rejoice and eat their warm bread, or what not, in peace, following it up by a bit of pancreas.

Concussion of the Brain (*The Clinic*, January 26 and February 2, 1878).—M. Duret has recently read before the Biological Society of Paris a communication which appears translated and abridged in *The Clinic*. He has experimented upon animals, producing the symptoms of concussion or compression, by drilling the skull and forcibly injecting against the brain a small quantity of liquid, which he immediately allowed to escape. In this way he thinks he has demonstrated that the symptoms of concussion do not depend on what he calls the "incomprehensible myth of oscillation of the nervous mass," but upon the existence of a series of lesions produced by the action of the cephalo-spinal fluid. This is displaced by the shock, and is driven through the different parts of the brain, principally about the floor of the fourth ventricle. The unconsciousness which is so often found he explains by the cutting off of the external impressions which are received through the medulla, and which are necessary for the origination of thought. This theory he believes would explain the absence of marked lesions in cases of death from concussion, and also the fact that the most serious disturbance of the hemispheres alone is insufficient to produce many of the symptoms noticed in concussion. At the December meeting of the Bradford Medico-Chirurgical Society, Mr. Miall read a paper

(*The Lancet*, January 12, 1878) on injuries of the head, containing a full account of fifteen cases. The theory of concussion and the nature of compression were discussed, and the symptoms of fracture of the base of the skull detailed, with instances of recovery. The following conclusions were drawn: (1) that the existence of concussion pure and simple is not proved; (2) that compression is scarcely met with by itself, being usually in combination with other conditions; (3) that unconsciousness more or less complete, with irritability and restlessness, results from laceration, contusion, or congestion of the base of the brain; (4) that injury of this part, insufficient to cause symptoms at first, will produce symptoms after inflammatory changes have taken place; (5) that inflammation, especially of the membranes, produces delirium; (6) that paralysis to any marked extent is rare in head-injuries, though slight and more circumscribed paralysis is common. In treatment the value of rest was insisted on.

Depressed Fracture of Frontal Bone (*The Lancet*, January 5, 1878).—Prof. Spence reports the case of a boy who, while at play, had fallen over the balustrade of a common staircase, and alighted upon his head on the pavement below.

A large irregular wound, with ragged edges, and the size of a five-shilling piece, was discovered half an inch above the right superciliary ridge. A portion of the frontal bone, nearly as large as the wound of the soft parts, was driven inwards upon the dura mater.

The child breathed quietly, and was unconscious, but could be roused. Chloroform having been administered, Prof. Spence enlarged the wound of the skin somewhat in an upward direction, carefully separated the periosteum from the depressed osseous portion, and then inserted an elevator between the dura mater and the bone, and raised those parts of the inner and outer tables of the skull which had been forced inwards, and took them away in three pieces. The pulsations of the brain became distinctly visible. The periosteum was folded over the dura mater, and the edges of the wound, as far as possible, were brought together with silver sutures.

It seemed probable that there was a fissure extending towards the base of the skull, involving the orbital plate of the affected side.

The child remained unconscious all the night following the operation, but next morning he could be easily roused. The head was shaved, and ice continuously applied to it.

There was considerable œdema of the upper eyelid of the right side, and the superficial and deep vessels of the eyeball were much injected.

A fortnight later a large abscess formed in the cornea of this eye, followed by sloughing of the cornea and also of a portion of the sclerotic. Eventually, however, a good stump of an eye remained.

The head-injury progressed to recovery without a bad symptom. The portion of the dura mater that had been exposed gradually became covered with granulations, cicatrized, and contracted considerably.

The Amount of Saliva secreted during Mastication (*The Lancet*, January 5, 1878).—M. Tuczek, in the last part of the *Zeitschrift f. Biologie*, relates his experiments on the amount of saliva secreted during the mastication of different kinds of food. The plan adopted was to take an ordinary mouthful of the substance, the quantity of water in which was known beforehand. It was masticated till judged fit to be swallowed, then ejected, weighed, and dried. From the dry residue the quantity introduced into the mouth was calculated, and on subtracting this from the total weight of the ejected morsel, the amount of saliva added to it was obtained. The quantity of saliva secreted he finds is, as might be expected, greatest in dry food, as the crust of bread, where it amounts to somewhat more than the weight of the substance itself. He proceeds on the data so obtained to estimate the absolute amount of saliva secreted per diem, and gives the following table: Adult fed on black bread exclusively, 545 grammes; white bread, 698; non-nitrogenous food (starch, fat, sugar), 500; food with a larger proportion of bread and potatoes, 659; mixed food, 476; albuminous food, 773 grammes. On comparing these numbers with the total weight of the salivary glands (about 66 grammes), it appears that 100 grammes of salivary gland secrete in an hour about 1300 grammes of saliva, which, in comparison with other glands of the body, shows that the salivary glands possess great activity.

The Diagnosis of the Nature of Pleuritic Effusion (*The British Medical Journal*, December 15, 1877).—Dr. Aitken calls attention to some observations of Professor Baccelli upon the detection of the character of endo-pleural fluids by physical signs. The latter formulates the results of his observations thus:

1. The whispered voice-sound is transmitted most clearly through a serous effusion.

2. Through sero-fibrinous effusions the same sound is transmitted more or less clearly according to the point at which we listen: clearly at the upper part, where the fluid is lightest; less clearly lower down, where the fluid is denser; and probably lost altogether at the base.

3. In empyema, the transmission of the whispered voice-sound is reduced to a minimum or altogether lost.

Smokers' Gastralgia (*The British Medical Journal*, January 5, 1878).—M. Révillout reports in the *Gazette des Hôpitaux* two cases of gastralgia attributed to the use of tobacco. The first case occurred in a man, aged 52, in M. Vulpian's wards. He had always been moderate in everything except the use of

tobacco, had never undergone any privation, has always been able to choose his food, and had been careful in his diet. On six different occasions he had been seized with extremely acute attacks of pain in the stomach, not extending to the back, and coming on more or less quickly after every meal, bringing on also vomiting of the food. In the intervals of these attacks, of which the average duration was about six weeks, his health seemed tolerably good, with the exception of some vertigo, dazzling of the sight, and weakness of the legs. These troubles were more marked when the patient felt better and smoked than when, suffering with gastric troubles, he had no appetite for anything and temporarily left off tobacco. M. Révillout also reports a case in which a gentleman in good circumstances, following an excellent hygienic system, found his digestive functions gradually failing, whilst his strength diminished. Later on, he was attacked with vertigo, staggering whilst walking, and spasms and prickings in the limbs. After every meal, severe pain was felt in the epigastric region; the face was pale, the speech gasping, the heart-beats uncertain, and the body generally discolored. This patient smoked from twelve to fifteen cigars daily. Under advice, he reduced this number to two, and immediately a considerable improvement took place. He again took to excessive smoking; but, as the original symptoms returned, he was again obliged to abstain from tobacco. Under medical advice, he washed the tobacco of which he made his cigarettes in a coffee-percolator, by first throwing on it ammoniacal water, then repeated baths of hot water. The nicotine was thus partly dissolved out of, or mechanically removed by, the warm water. The tobacco, when washed, was spread out in the sun to dry on paper, and thus modified satisfied the patient, who from that time was not troubled with dyspepsia or vertigo.

Malarial Hæmaturia (*The New Orleans Medical and Surgical Journal*, February, 1878).—Dr. Joseph Jones reports several cases of malarial hæmaturia, a disease which he believes to be entirely distinct from yellow fever, although possessing some symptoms in common with it. He has observed after death the following pathological changes: enlarged slate- and bronze-colored liver with pigment granules; enlarged spleen, softened or indurated; gall-bladder distended with thick ropy bile, highly concentrated and never containing blood. The vomited matters of malarial hæmaturia invariably contain bile, those of yellow fever never do. The kidneys after death from malarial hæmaturia present a deep-red purple congested hue, and their sections examined under the microscope exhibit the tubuli uriniferi filled with coagulated blood. It is evident, therefore, that the issue in any case of malarial hæmaturia will largely depend upon the number of urinary tubes thus blocked up with coagulated blood. Dr. Jones has been led by experience to rely chiefly in treatment upon:

1. Prompt purgation, with such agents as calomel, extract of rhubarb, and aloes.

2. Counter-irritation over the region of the kidneys.

3. Cut-cups,—the local abstraction of blood over the region of the kidneys by cut-cups.

4. Quinine in full and sufficient doses to prevent the recurrence of the paroxysms. If rejected by the mouth, the quinine must be administered by the rectum; and if both avenues are closed, in virtue of incessant purgation and vomiting, then it may be introduced by subcutaneous injection, or through blistered surfaces.

5. Nutritious diet in small quantities and at regular intervals, when retained by the stomach.

6. The persistent use of calomel, rhubarb, aloes, and colocynth, in small doses, combined with quinine, at regular intervals three or four times a day, during the continuance of the jaundice, if the bowels are torpid.

7. After the establishment of convalescence, the continuous use of such tonics as the nitromuriatic acid, and tincture sesquichloride of iron, in combination with quinine; nutritious diet, generous wine; and change of climate to an elevated non-malarious region, if within the power of the patient.

Medical Evidence from the State of the Ovum or Fœtus in Cases of Criminal Abortion (*The Boston Medical and Surgical Journal*, January 31, 1878).—Dr. F.W. Draper, in his report on the progress of forensic medicine, gives as follows the conclusions of a committee of the Société de Médecine Légale:

"1. Abortion in the *first* month of pregnancy is always attended with the expulsion of the complete ovum (*en bloc*), and it passes from the woman unperceived by her.

"2. The aborted ovum may, however, in some cases undergo spontaneous rupture during its passage through the neck of the womb.

"3. From the *second* to the *third* month also the ovum may be expelled in a complete condition; but this is not usual, except when the fœtus is dead. When the fœtus is living, it is more common to find that it has undergone rupture. This depends on various conditions, such as the degree of resistance offered by the ovum, the force of the uterine contractions, and the state of the cervix uteri.

"4. The absence of the fœtus does not prove that there has been criminal interference, for if the dead ovum have remained long in the uterus the fœtus or embryo may have disappeared by solution.

"5. Dating from the *third* month it is usual to find the ovum broken up, abortion taking place at two periods, with the discharge of the fœtus followed by that of the placenta.

"6. At the *fourth* month, and subsequently, abortion may be regarded as a delivery on a

small scale. At this period it is exceptional that the ovum is found expelled entire.

"7. Up to the third month the cord is too weak to resist the force required to extract the placenta; and, *a fortiori*, it would not be strong enough to allow an inversion of the parts, as was assumed in the case reported to the Society.

"8. Rupture of the membranes, taken alone, cannot, therefore, be regarded as a sign of intentional abortion, and even if accompanied by an inversion of the membranes it cannot be admitted as sufficient evidence of a criminal act, even in the early stage of pregnancy."

THE THERAPEUTIC USE OF IODOFORM (*The British Medical Journal*, January 26, 1878).—Mr. Berkeley Hill reports the most successful results from the local use and internal employment of iodoform. In all venereal sores, except those markedly inflamed, he uses it in powder or ethereal solution, and prefers it to all other applications. Internally he gives it in one-and-a-half-grain doses, made into a pill with extract of gentian. Three pills are given each day, increasing gradually until eight or ten pills are taken in twenty-four hours. He has used it with excellent effect in cases of obstinate syphilitic ulceration of the tongue, where the dorsum is covered with rugged thickened epithelium, which is constantly splitting into deep fissures and thus causing continual severe pain to the patient. This affection is often quite insensible to mercury, alkaline iodides, or arsenic,—the remedies usually beneficial. In three of these obstinate cases, where he had been treating the patients at intervals for years with the remedies just mentioned with little lasting benefit, iodoform pills have acted like a charm. Pain, immediately lessened, in two or three days ceased wholly; and the fissures healed rapidly, while the tongue soon shrank to its natural size. He thinks it acts more rapidly than potassic or other iodides, and is quite as readily borne.

TRACHEOTOMY IN DIPHTHERITIC CROUP (*The Chicago Medical Journal and Examiner*, February, 1878).—Dr. R. S. Bogue reports fifteen cases of tracheotomy for diphtheritic croup, six of them successful, and from this experience draws the following conclusions:

1. Membranous croup, diphtheritic croup, and diphtheria are all cases of the same disease, all diphtheritic. If not identical, they are so practically, as regards treatment; neither requiring treatment which is not applicable to the other. No antiphlogistics are useful for the one or the other. We believe that the essential difference is only in the place where the disease or membrane first locates itself. If in the pharynx, it is usually seen before the larynx becomes affected. If in the larynx, the swelling and deposit of membrane may in a very short time obstruct it sufficiently to destroy the patient even in a few hours.

2. That tracheotomy should be resorted to in all cases where death is threatened by suffocation from obstruction in the larynx, and as soon as the breathing has become insufficient to sustain the vital powers.

3. That it is best in the majority of cases to use an anæsthetic.

4. That the operation should be made slowly, and by carefully dissecting down upon the trachea, avoiding all vessels which can be seen and protected from division, and, unless there is some urgent reason for opening the trachea before all bleeding has ceased, this should first be controlled.

5. That a tube should be used. It will keep the wound open better than anything else, and cause as little irritation. It should be as large as the trachea will admit. The opening should be not less than about one-fourth of an inch, for the trachea of a child somewhat less than two years will admit readily one of that size. Should the wound ulcerate, the tube must be removed, if the wound will remain open, so as to allow easy breathing. It may be left out for a part or all of the day, or wholly, as the case will allow. Almost any stimulating application may be used for the wound, if it is unhealthy. If it is not, nothing need be done.

6. That the temperature of the room should be not less than 75°, moist, and free from currents of air. The air should, for the first few days at least, be kept thoroughly saturated with steam from boiling water or from the steam atomizer. The vapor may be medicated to suit the various fancies respecting the properties of medicaments. Dr. Bogue has used a solution of glycerin, about one-fifth or one-sixth part glycerin in plain water: a little chlorate of potassium, or carbolic acid, may be added.

MISCELLANY.

PHOTOGRAPHING COLORS.—Joseph Albert, photographer to the court at Vienna, has finally succeeded in photographing very perfectly the natural colors in the picture. The secret of the invention consists in the analysis of the white light into three colors, yellow, blue, and red, and in the recovery of the three colors ready for the press. On a plate, chemically prepared so as to receive but the yellow parts of the light, and the tones of the colors of the object to be reflected, the first photograph is taken, when a negative of that plate is at once put under the press, whose cylinder is dubbed over with yellow paint. None but the tones of the yellow colors are now seen in the impression. After that the object is photographed on the plate made to reflect but the blue colors. This plate now under the press reflects a blue impression, the cylinder being dubbed over with blue paint. In the same manner he receives

but the tones of the red colors by means of a third plate. Printing the individual pictures of the yellow, blue, and red over each other, a picture is produced true to nature, the colors intermixing by having been printed over each other.—*Journal of Applied Science.*

Russian Epidemics.—According to the Russian press, an appeal has been made to the government from Alexandropol for a grant of money to cleanse the town, on the ground that, owing to the passage of seventy thousand sick and wounded through the town since the war began, and the neglect of the local authorities to disinfect the place, the streets and the houses are filled with disease. The death-rate is 55 per 1000, and nearly every house that has not been converted into a hospital for the army contains inhabitants stricken with typhus. At Tiflis the operations of one branch of the Red Cross Society are entirely suspended, all the doctors being dead. It is expected in the Caucasus that a plague will break out in the spring. At Penza smallpox and measles are rife. Near St. Petersburg the black smallpox has broken out among the Turkish prisoners interned at Gatchina; and it is further stated that ten thousand sick and wounded are awaiting removal at Sistova. So many are suffering from typhus that it is proposed to have "typhus trains" to carry soldiers infected with that disease only.

Enemata of Cold Water in Jaundice.—Dr. Krull, in the *Berl. Klin. Woch.*, reports much benefit from this mode of treatment in catarrhal jaundice. Three or four pints or more are slowly injected, and retained as long as possible; after the second injection bile appears in the stools. The temperature is to be about 60° Fahr., and may be reduced to 50°. The most striking points in this treatment are the rapid relief to pain in the stomach, and the speedy return of appetite. The enemata should be given once in twenty-four hours. At present no case has resisted in Dr. Krull's hands seven such injections.—*The Doctor.*

New Test for Alcohol.—A very sensitive reagent for alcohol, and one that is very simple in its mode of application, has been found by M. Jacquemart. It is a solution of nitrate of mercury obtained by treating the metal with a little nitric acid of average concentration. The action is vigorous and rapid. The mercury is brought in part to the minimum of oxidation, and if a little ammonia be added to the mixture, after the reaction, a dark precipitate is obtained, which is darker the more there is of alcohol in the product suspected. Methylic alcohols and similar liquids do not give a dark precipitate with ammonia.

Test for Milk.—A German paper gives the following as a test for watered milk. A well-polished knitting-needle is dipped into a deep vessel of milk and immediately withdrawn in an upright position. If the sample is pure, some of the fluid will hang to the needle, but if water has been added to the milk, even in small proportions, the fluid will not adhere to the needle.—*The Doctor.*

The women-doctor question is disturbing the peace of the British Medical Association. In 1875–6 a circular was sent out to all the members, asking for an opinion as to the expediency of admitting women. The result was 3072 noes, 1051 ayes. Nevertheless, the council has recently decided that it has no power to exclude women either from membership or participation in the meetings, and Dr. Wilson Fox has in consequence withdrawn from the Association.

The death of Dr. Fleetwood Churchill, the well-known obstetrician, occurred January 31.

NOTES AND QUERIES.

Mr. Editor,—I have read with pleasure, in a recent number of the *Medical Times*, some remarks in relation to the chemical analysis of *dialyzed iron*, contributed by Professor Trimble. It is true that the "fear of exposure is the conservator of public morals," to a certain extent; but how does it benefit the medical practitioner if he is not to know withal which is the inferior or whose the superior preparation?

Does the law protect the manufacturer of inferior qualities, ofttimes the result of cheaper prices as the result of competition? Is there a penalty attaching to an author who would give the names of the manufacturers of the various specimens examined?

Should there be any difficulty in determining these questions, then let us have the names of the manufacturers of the best articles of their kind, those which stand nearest to the standard test

Without this, it seems to me, volumes of contributions would not aid us; indeed, it would create a fear and distrust of obtaining those preparations not standard in strength nor as efficacious as we have a right to expect.

Very respectfully,
CHARLES G. FROWERT, M.D.

Philadelphia, March 4, 1878.

OFFICIAL LIST

OF CHANGES OF STATIONS AND DUTIES OF OFFICERS OF THE MEDICAL DEPARTMENT U. S. ARMY FROM FEBRUARY 24 TO MARCH 9, 1878.

Alexander, C. T., Major and Surgeon.—Relieved from duty in the Department of the Columbia, to proceed to St. Louis, Missouri, and report on arrival by letter to the Surgeon-General. S. O. 38, A. G. O., February 21, 1878.

Bache, Dallas, Major and Surgeon.—Granted leave of absence for one month. S. O. 31, Division of the Pacific and Department of California, February 18, 1878.

Smart, Charles, Captain and Assistant-Surgeon.—To report in person to the Commanding General Division of the Atlantic for assignment to temporary duty. S. O. 48, A. G. O., March 6, 1878.

Cronkhite, H. M., Captain and Assistant-Surgeon.—Relieved from duty in Department of Arizona, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 48, c. s., A. G. O.

Winne, C. K., First-Lieutenant and Assistant-Surgeon.—Leave of absence extended one month. S. O. 17, Division of the Missouri, March 4, 1878.

Havard, V., First-Lieutenant and Assistant-Surgeon.—Relieved from duty in Department of Dakota, to proceed to New York City, and, on arrival, report by letter to the Surgeon-General. S. O. 48, c. s., A. G. O.

Taylor, M. E., First-Lieutenant and Assistant-Surgeon.—Granted leave of absence for one month from March 3. S. O. 29, Department of the Gulf, February 27, 1878.

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"In complicated affections of the Stomach, such as *Inflammation, Gastralgia, Pyrosis,* etc., it may be combined with Subnitrate of Bismuth and opiates; and in Diarrhœa and Cholera Infantum, with astringents, both vegetable and mineral. I have given the article to several prominent physicians, who have used it with the happiest results, among whom I may mention Prof. E. WALLACE, of the Jefferson Medical College."

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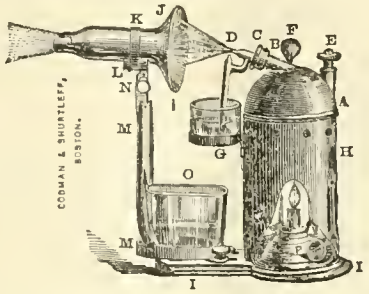

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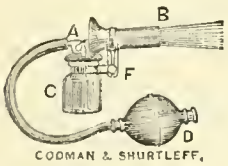

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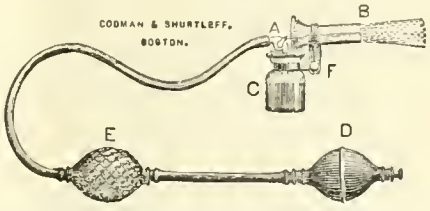

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